lis ca. 15 mm. longis. Bracteae ad basin distinctae, ca. 3 mm. longae. Hypanthium poculiforme, 2.5 mm. longum. Calycis tubus ca. 0.5 mm. longus; lobi late rotundati ca. 1 mm. longi. Petala ovata, 3 mm. longa. Antherae crasse subulatae, 2 mm. longae, basi tuberculo dorsali ornatae.

Type, Cuatrecasas 21082, from Río Calima, in the Choco region of El Valle, Colombia, alt. 30--50 m. Since the specimen exhibits only a single flower, no dissection has been made and the dimensions stated above are approximate. The anthers are clearly visible and leave no doubt of the generic position of the plant. Only three species with anisophyllous leaves have hitherto been described. Of these T. glabrescens Tr. has sessile, cordate-clasping leaves; T. insignis Tr, has much larger 5-nerved leaves, setose stem, and bracts longer than the calyx. T. anisophylla Tr., to which our plant is most closely related, has subsessile leaves broadly rounded or subcordate at base, much longer peduncles and bracts equaling the calyx.

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NOTES ON SOME AMERICAN PLANTS

H. A. Gleason

Sida Elliottii and Sida inflexa.

Sida Elliottii is a well known species of the southeastern states, represented in the larger herbaria by ample series of specimens. Such manuals as Gray, seventh edition, Britton & Brown, second edition, and Small give its range as extending north to Virginia and Missouri. A recent collection of the Virginian plant by Fernald has led him to examine the species carefully and as a consequence to segregate the plants of Virginia, Missouri, Tennessee, and one collection from Alabama as Sida inflexa Fern.

The differences between S. Elliottii and the proposed species are stated by Fernald (Rhodora 40: 463, 464) as shown below.

1. S. E. (a) Stems nearly glabrous, (b) 1.5--8 dm. tall.
   S. i. (a) Caule minute stellato-puberulo, (b) 0.6--1.2 m. alto.
2. S. E. (a) Cauline leaves linear, (b) mostly 1.5--5 cm. long, (c) 1.5--7 mm. wide.
   S. i. (a) Foliis lanceolato- vel lineari-oblongis, (b) 2.5--6 cm. longis, (c) 0.4--2 cm. latis.

3. S. E. (a) Flowers mostly solitary in the axils and (b) on peduncles up to 2.5 cm. long.
S. i. (a) Floribus plerumque corymbosis terminalibus, (b) pedunculis ad 1.7 cm. longis.
4. S. E. Calyx at most strigose on the ribs at base.
S. i. Calycibus basi plus minusve villoso-hirsutis.
5. S. E. Carpels (a) with prominent erect teeth, (b) glabrous or nearly so on the back.
S. i. Carpellis apice valde incurvatis, (b) dorso hispidis.

Of these characters, impressive in their totality, no. 1 may be neglected as descriptive but not diagnostic, since the dimensions of one are mostly included in those of the other. Under no. 2, the actual dimensions overlap very much, but the ratio of length to width seems derivable from the stated figures at 7--10 times as long as wide in S. Elliottii and 3--6 times in S. inflexa. Under no. 3, the second part of the statement refers only to maximum dimensions. The first part, although purely qualitative refers to a condition which can generally be recognized, although there is no surety that a corymbose inflorescence does not eventually become axillary by elongation of the internodes. Numbers 4 and 5, especially the latter, appear to afford the best diagnostic characters.

The Britton Herbarium contains forty sheets of S. Elliottii in the broad pre-segregation sense, of which six are from Tennessee and Missouri and are referable by Fernald's citations to S. inflexa. Also among the forty are three from Alabama, from which state Fernald also cites S. inflexa. The remaining thirty-one are from Florida and the Gulf Coast and are referable to S. Elliottii according to the geographic distribution stated by Fernald. These sheets have been carefully examined by me. Leaf-width has generally been measured by eye-piece micrometer under a magnification of 10. Pubescence of calyx and carpels has been observed under a binocular magnifying 23 times. Not every sheet illustrates all of the characters stated by Fernald.

2. Ratio of length to width of leaf. Sixteen Gulf Coast plants show the broadest leaves 3--6 times as long as wide, thereby corresponding to the character of the more northern S. inflexa. Fifteen show the broadest leaf seven times as long as wide, or more, agreeing with Fernald's statement for S. Elliottii. The narrowest upper leaves, so far as observed, are 8--24 times as long as wide. In the Alabama plants, the lower leaves are 2.3--3 times, the upper 12--15 times as long as wide. In the Tennessee and Missouri plants, the lower are 3--6, the upper 8--12 times as long as wide, in the latter features transcending the figures stated by Fernald

for S. inflexa.

3. Corymbose or axillary flowers. In 10 Gulf Coast sheets the flowers may be described as corymbose, a character adduced for S. inflexa. In 18 they are axillary, as stated for S. Elliottii. In two Alabama sheets they are axillary; in one they are corymbose. In six Tennessee and Missouri plants (S. inflexa) they are all corymbose.

4. Pubescence of the calyx. Fernald states that the calyx of S. Elliottii is at most strigose on the ribs at base. No strigose calyx was observed in all 40 sheets. Eleven Gulf Coast plants (S. Elliottii) are distinctly villous with soft, spreading, slender hairs on the midrib of each sepal, as stated for S. inflexa; 19 are not villous. Of the six Tennessee and Missouri plants (S. inflexa) all are villous on the midribs. Fernald does not state the pubescence of the surface of the calyx. In two sheets from the Gulf Coast and one from Alabama, it is glabrous; in two sheets from the Gulf Coast and one from Tennessee (S. inflexa) it is nearly glabrous; in all others it is distinctly but minutely stellate.

5a. Direction of the beak. In 11 sheets from the Gulf Coast (S. Elliottii) the beaks are erect; also in two from Alabama, and in four (S. inflexa) from Tennessee and Missouri. In three sheets, all from the Gulf Coast (S. Elliottii), they are incurved, but the incurving is apparently due to the direction of pressure when the plants were dried. In the other sheets mature carpels are not present or not easily visible.

5b. Pubescence of the carpels. In every sheet where carpels are exhibited the beaks of the carpel are minutely hispidulous. Also in every sheet the back of the carpel below the base of the beaks is glabrous.

In summary, carpels with naturally incurved beaks and hispid on the back do not exist in our specimens of the species, even in the specimens cited by Fernald as S. inflexa. Villous calyces exist in the specimens referable to S. inflexa but also in a third of the Gulf Coast plants. Corymbose inflorescence exists in S. inflexa, but also in a third of the Gulf Coast plants. In the Gulf Coast region there is no correlation between villous calyces and corymbose inflorescence. The distinction between the two in proportions of their leaves is largely fictitious.

In conclusion, I can not recognize S. inflexa Fern. as a species, nor even as a variety or form.

Sium suave.

Sium suave Walt. is a widespread species across the northern states and adjacent Canada from the Atlantic to the

Pacific. When well grown in our northern wet sunny meadows, or farther west in the open prairie "sloughs", it becomes a great husky plant up to 2 meters tall or even more, with a stem 3 cm. in diameter near the base and very prominently and sharply angled. Under such favorable circumstances the principal leaves may be 3 dm. long with as many as 17 leaflets and these up to 17 cm. long and 5 cm. wide.

But the plant is exceedingly variable in stature, leaflet-shape, and dimensions. The leaflets may be linear and only 2 mm. wide, the stem may be slender and weak, the umbels comparatively few. The umbels nevertheless retain their usual appearance, except for an occasional reduction in the number of primary rays, and the character of the rays, the pedicels, and the fruit seems to be as uniform as one expects to find within a single species. Whether these variations are genetic and consequently heritable, or are caused by a variable environment, such as amount of shade, depth of water or the water table, or competition from surrounding vegetation, is as yet unknown. Long familiarity with the plant in the field has led me to believe that much of its variability is caused by the environment. I have no proof that such is the case; it is merely an impression based on cumulative experience.

Sium Carsonii Durand has been recognized by some as a species since its first publication in 1867 and is still so considered by Mathias and Constance in 1945. It was reduced to varietal rank by Stevens in 1910 and to a mere form of S. suave by Fassett in 1921. Fassett's disposition, with which I agree, was accepted by Fernald in 1943 (in print) or earlier.

Sium floridanum was described by Small in 1933 in his usual sketchy fashion and based on two specimens in the herbarium of The New York Botanical Garden, both from the Chipola River in Florida. Extracting his contrasting characters both from his key and his descriptions and placing them together, we have the following, with the upper line of each pair referring to S. suave, the lower to S. floridanum:

1. Plant 6--19 dm. tall, stout.
1. Plant smaller and more slender.
2. Dilated petiole auriculate at the top.
2. Dilated petiole oblique at the top.
3. Leaflets 11--17, linear to linear-lanceolate or rarely wider.
3. Leaflets 3--11, ovate to elliptic-lanceolate.
4. Leaflets saliently sharp-serrate or incised.
4. Leaflets finely appressed-serrate.
5. Umbel-rays slender.
5. Umbel-rays filiform.

6. Larger corollas fully 2 mm. wide.
6. Larger corollas less than 2 mm. wide.

As to the significance of these differences, let us examine the type and compare it with northern plants always accepted as S. suave.

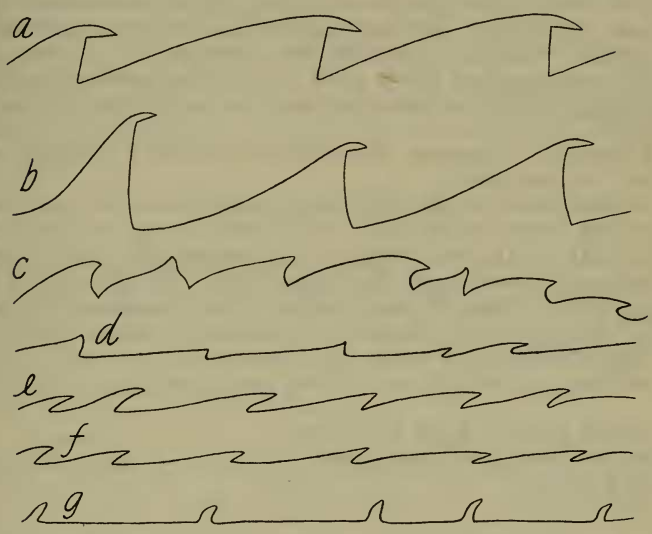


Fig. 1 Leaf-margins

1. The type specimen and a duplicate of it are the tops of plants. They do not indicate that the plant was smaller. The thickness of the stems, in comparison with plants of S. suave measured at the same distance from the summit, does not indicate that the plants were significantly more slender. Some plants of S. suave, as Blake 5456 from New Brunswick, are much stouter; others, as Hartmann 215 from New Hampshire, are equally slender.

2. The petiole of the type of S. floridanum does taper gradually to the summit. In S. suave it may taper gradually, or be abruptly narrowed, or very distinctly auriculate.

3. The largest leaves of the type have only 9 leaflets. On the upper and uppermost leaves this number is progress-

ively reduced to 7, 5, 3, and 1. In S. suave there may be as many as 17; other plants show, as far as the dried specimens indicate, a lower maximum, often 11 or 9, in one instance 7, while the leaves are again progressively reduced upward to 5, 3, or even 1.

4. The leaf-serration of S. suave varies greatly and apparently without relation to any other structural feature. Six leaf-margins of northern plants are shown in our Fig. 1 (p. 285), all magnified 8 diameters. The type of S. floridanum is very uniform in the character of its serration and a typical centimeter is also shown in our figure. I trust that the reader will try to decide for himself, on the basis of Small's statements, which part of the figure represents S. floridanum before turning to the clue in the last paragraph below.

5. Small's statement needs more explicit statement before it can be discussed.

6. Measurements of dry flowers have been made repeatedly, selecting always those that were pressed open to exhibit their full width, but making no allowance for the distention caused by flattening of the hypanthium. The type of S. floridanum varies from 18 to 23 units on my eye-piece micrometer, while S. suave varies from 18 to 26. This corresponds to approximately 1.7--2.2, or 1.7--2.4 mm.

Mathias and Constance add two characters:

7. Bracts 6--10, 3--15 mm. long.
7. Bracts 2--5, 2--5 mm. long.
8. Rays 10--20.
8. Rays 6--10.

In the type of S. floridanum the bracts on 3 umbels are 2, 5, and 5; their lengths are 2.7, 3.6, and 6.6 mm. The bracts in S. suave are usually either 5 or 8, the larger number holding for somewhat more than half the plants; umbels with 3 or 2 bracts are occasional and one bractless plant has been seen.

Fernald in 1943 added another character, or rather defined one suggested by Small:

9. Peduncle, primary rays, and pedicels angulate.
9. Peduncle, primary rays, and pedicels filiform.

The statement concerning S. suave is correct as to peduncle and primary rays. The pedicels may or may not appear angled when dry, but every specimen which I have examined after boiling has been essentially terete. The type of S. floridanum has the peduncle and primary rays just as strongly angled as in inflorescences of similar size in S. suave. The

pedicels also appear angled when dry.

It seems clear to me that there are no definite morphological features associated with S. floridanum which might justify its maintenance as a species. Its sole character is that of general frailty or debility in contrast with the sturdiness and virility of the usual type and such a character might easily be the result of a shaded environment on a typically sun-loving plant. The same conclusion is suggested by Fernald's statements that its petioles are widely spreading, while those of S. suave are ascending.

The source of the seven leaf-margins illustrated in Fig. 1 (p. 285) is: (a) Jones 12593, from Illinois; (b) Hartman 215 from New Hampshire; (c) type of S. floridanum; (d) Fernald & Wiegand 5954 from Newfoundland; (e) Deam 21292 from Indiana; (f) Gleason & Gleason 197 from Michigan; and (g) Senn 1516 from Ontario.

Rhamnus lanceolatus.

Rhamnus lanceolatus Pursh is a well known species of the Middle West, where it inhabits rich moist soil and is, in general, the sole representative of the genus. From southern Illinois southward its range overlaps with that of R. carolinianus Walt.

Pursh's description reads:

R. inermis, arborescens; foliis lanceolatis serrulatis utrinque acutis subtus pubescentibus. On the side of hills: Tennessee. Lyon. v. s. in Herb. Lyon. Berries black.

Pursh had four other species in his Flora and it is noteworthy that this is the only one without mention of floral characters and the only one of our three native species which he had not seen growing.

Twenty-four years later Torrey and Gray knew this plant directly from Kentucky and Missouri specimens and accepted Pursh's statement that it grew also in Tennessee. Their description must have been written primarily from the actual material at hand, but through deference to Pursh's "foliis.. ...subtus pubescentibus" they stated "more or less pubescent beneath." At the same time and place they described as new R. parvifolius, with pubescent leaves and tetrandrous flowers, based on a Barton specimen from Harper's Ferry, W. Va. The type of the species is at the New York Botanical Garden and confirms what Torrey and Gray wrote in their appendix two years later: "We have reason to suspect that this plant is not distinct from R. lanceolatus." Other specimens agreeing with Barton's type occur from southern Pennsylvania to Alabama. All have leaves densely pubescent at anthesis

with apparently golden-brown hairs and remaining pubescent at maturity.

West of the mountains, where the species is comparatively common, the leaves may or may not be sparsely pubescent at anthesis and are regularly glabrescent by maturity. Finding no other character to distinguish the two populations, I propose to recognize them as well marked geographical varieties:

Rhamnus lanceolatus Pursh, var. lanceolatus. Speciei pars typica, foliis molliter pubescentibus.

RHAMNUS LANCEOLATUS Pursh, var. GLABRATUS Gl., var. nov. Foliis juventute glabris vel parce villosulis, maturitate glabris. Rich moist woods at low elevations, west of the mountains, Kentucky and Tennessee to Nebraska and Arkansas. Type, Deam 787, Brookville, Franklin County, Indiana, in Herb. N. Y. Bot. Gard.

Triadenum.

The few species of Triadenum, although segregated generically more than a century ago, have often been considered as forming merely one section of the large genus Hypericum. Britton adopted the genus Triadenum in the Illustrated Flora and was followed by Small and Rydberg. The characters of the genus are well known. The petals are imbricate rather than convolute; the stamens are only nine and are united into three fascicles of three stamens each; these fascicles alternate with three conspicuous hypogynous glands; the petals are pink, flesh-color, or greenish instead of yellow. It is purely a matter of personal opinion whether these characters are considered of sufficient importance to warrant the segregation of a genus. In my personal opinion they are, and I am accordingly discussing our American species under the generic name Triadenum.

For many years our plants have been classified in two species, T. petiolatum (Walt.) Britt. and T. virginicum (L.) Raf.

As to the first of these, Fernald showed clearly in 1936 that it consisted of two populations, to one of which he gave a varietal name, maintaining the other as the typical element of the species without a distinctive name. Walter had described them both as species of Hypericum in 1788 but unfortunately one of his names, H. petiolatum, was a homonym antedated by H. petiolatum L. The oldest valid name for this species under the genus Hypericum is H. Walteri Gmel. The other of Walter's species, H. tubulosum, has been described in recent literature as T. longifolium Small, over which the specific epithet tubulosum has more than a century priority.

It is again purely a matter of personal opinion whether

these two populations are considered as two species, or as two varieties of one species, or as a single species. In my opinion they are species. Fernald has pointed out correctly the difference in the leaves. The sepals of tubulosum average about 1 mm. longer and are almost always acute. The leaves of tubulosum have no superficial glands and also lack the translucent glands found in the other species.

While valid names for both are available in Hypericum, new combinations are necessary when the plants are placed in Triadenum.

TRIADENUM WALTERI (Gmel.) comb. nov. Hypericon Walteri Gmel. Syst. Nat. 2: 1159. 1791. Hypericum petiolatum Walt. Fl. Car. 191. 1788; not H. petiolatum L. 1762. H. tubulosum Walt. var. Walteri Lott, Jour. Arnold Arb. 19: 279. 1938. Triadenum petiolatum Britt. Ill. Fl. 2: 437. 1897.

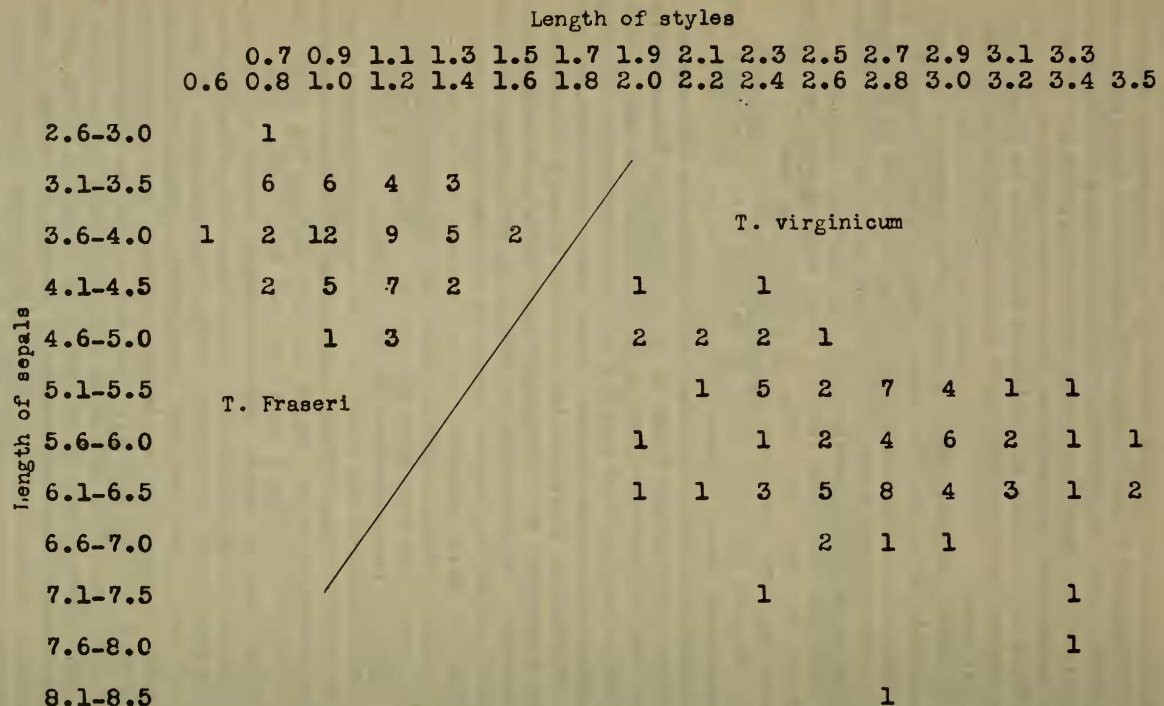
TRIADENUM TUBULOSUM (Walt.) comb. nov. Hypericum tubulosum Walt. Fl. Car. 191. 1788. T. longifolium Small, Bull. Torrey Club 25: 140. 1898. H. petiolatum var. tubulosum Fern. Rhodora 38: 436. 1936. H. Walteri var. tubulosum Lott, Jour. Arnold Arb. 19: 151. 1938.

Fernald has also indicated the differences between the northern and southern forms of T. virginicum. These differences are so clear-cut that Spach separated the plants specifically a century ago and one can only wonder why they were neglected by all (so far as I know) American botanists for an even hundred years. On the basis of these differences Fernald proposed to distinguish the plants varietally, but here again I believe that he did not go far enough and that we shall do better to treat them as species. Again a new combination is necessary.

TRIADENUM FRASERI (Spach) comb. nov. Hypericum Fraseri Spach, Ann. Sci. Nat. Bot. II. 5: 168. 1836. H. virginicum var. Fraseri Fern. Rhodora 38: 434. 1936.

I have measured 155 fruits of the aggregate species under an eyepiece micrometer, using a magnification which permitted accuracy to the tenth of a millimeter. The sepals of the northern T. Fraseri vary from 2.8 to 4.9 mm. long, measured from the sinus, with an average length of 3.77 mm. Furthermore these sepals are always obtuse and usually actually rounded at the summit. Also, they are wider at the middle than at the base and consequently commonly appear elliptic or spatulate in general outline. The sepals of the southern T. virginicum vary from 4.3 to 8.4 mm. long and average 5.86 mm.; only one plant exhibited sepals less than 5 mm. long. These sepals taper toward the summit, which is sometimes acuminate, more commonly acute, and rarely narrowly obtuse. Because of the long terminal taper they appear lanceolate or oblong-lanceolate in outline.

The styles of the northern T. Fraseri, as they persist on


Length of styles
0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5
Length of sepals
2.6-3.0 1
3.1-3.5 6 6 4 3
3.6-4.0 1 2 12 9 5 2
4.1-4.5 2 5 7 2 1 1
4.6-5.0 1 3 2 2 2 1
5.1-5.5 1 5 2 7 4 1 1
5.6-6.0 1 1 2 4 6 2 1 1
6.1-6.5 1 1 3 5 8 4 3 1 2
6.6-7.0 2 1 1
7.1-7.5 1 1
7.6-8.0 1
8.1-8.5 1
T. Fraseri
T. virginicum

the fruit, vary from 0.6 to 1.5 mm. long and average 1.06 mm. Measurements were made only on the fruit, since they are rarely completely visible in flowers without boiling and dissecting. The styles of T. virginicum vary from 1.9 mm. (two instances) to 3.5 mm. and average 2.72 mm.

When the dimensions of the sepals and styles are plotted together [see the chart on page 290], they show that the aggregate is composed of two completely separate populations.

The distribution of the aggregate is in some ways similar to that of Sarracenia purpurea, which consists of a southern population chiefly confined to the coastal plain and a northern one extending far inland. T. virginicum (L.) Raf. is essentially a plant of the coastal plain from Nova Scotia to the Gulf coast, but extends inland across New York into southern Ontario and reappears in northern Indiana. T. Fraseri (Spach) Gl. is essentially a boreal plant, extending from Newfoundland and Labrador to Manitoba and southward to Connecticut, New York, northern Indiana, and Nebraska, or at higher altitudes to West Virginia.

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A LETTER FROM FERDINAND VON MUELLER

H. A. Gleason

There recently came into my possession a hand-written letter from the noted Australian botanist, Sir Ferdinand Jakob Heinrich von Mueller, addressed to B. Daydon Jackson (1), which has some biographical and bibliographical interest. Von Mueller was born in Germany in 1825, emigrated at an early age to Australia, became a British subject, devoted his life to a study of the flora of Australia, was government botanist for forty-four years and director of the Melbourne Botanic Garden for sixteen years, was created Baron by the King of Würtemberg in 1871, was knighted by Queen Victoria, and died in 1896. His career therefore shows some parallelism with those of Sir Richard and Sir Robert Schomburgk, who were also born in Germany. The letter reads:

21.11.83.

Herewith, dear Mr. Jackson, I beg to send you a copy of part of a letter from Dr. Fournier (2), just received, concerning the priority of Vahea over Landolphia, as this question will interest you not only for these genera but in many other respects for your nomenclator (3). I also forward a copy of the important prospectus, found by Dr. Fournier, as